

Docket No.: EVAN-0973
Application No.: 10/631,315
Amendment Date: January 5, 2006
Reply of Office Action of: October 18, 2006

LISTING OF THE CLAIMS

This listing of the claims replaces all previous listings.

Claim 1. (previously presented) A fire door or gate system, comprising:

- a controller;
- a fire door or gate;
- an input drive for moving the door or gate;
- a clutch connected to the input drive and operatively connected to the controller, the clutch including a rotor and a flex plate, the flex plate electromagnetically urged into engagement and out of engagement with the rotor by the controller.

Claim 2. (previously presented) The fire door system of claim 1, further comprising:

- an axle supporting the fire door;
- at least one gear connected to the input drive; and
- wherein the gear is rotatably connected to the axle yet fixable to the axle by the clutch.

Claim 3. (previously presented) The fire door system of claim 1, further comprising an axle driveably connected to the input drive and rollably supporting at least a portion of the door, the axle rollably receiving and feeding out sections of the fire door.

Claim 4. (previously presented) The fire door or gate system of claim 1, further comprising a position limit mechanism connected to an axle, the position limit mechanism registering the position of the door or gate and feeding back data representing the position to the controller.

Claim 5. (Canceled)

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Claim 6. (previously presented) A fire door system, comprising:

a controller;

a fire door;

an input drive for moving the door, wherein:

the input drive comprises a hand crank hoist connected to the axle for manually moving the door by operating the hand crank hoist;

the hand crank hoist has an engaged condition and a non-engaged condition, the system further comprising a hand crank sensor operatively connected to the controller and feeding back a signal to the controller indicating that the hand crank hoist is in at least one of the engaged and the non-engaged positions; and

a clutch connected to the input drive and operatively connected to the controller.

Claim 7. (previously presented) The fire door or gate system of claim 1, further comprising a plurality of alarm states having a respective plurality of different sets of physical characteristics.

Claim 8. (previously presented) The fire door or gate system of claim 7, further comprising a hazardous environment sensor connected to the controller, wherein the hazardous environment sensor feeds a signal back to the controller when a hazard is detected in a space to which the fire door or gate system is pertinent and the controller places the system in a first of the plurality of alarm states having a first set of physical characteristics.

Claim 9. (previously presented) The fire door or gate system of claim 7, further comprising a clutch failure sensor connected to the clutch, wherein the clutch failure sensor feeds a signal back to the controller when the clutch fails and the controller places the system in a second of the plurality of alarm states having a second set of physical characteristics.

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Claim 10. (previously presented) The fire door or gate system of claim 7, wherein the controller and clutch are adapted to be connected to a primary power source, the system further comprising a primary power loss sensor connected to the controller, wherein the primary power loss sensor feeds back a signal to the controller when the primary power is lost and the controller places the system in a third of the plurality of alarm states having a third set of physical characteristics.

Claim 11. (previously presented) The fire door or gate system of claim 7, further comprising:

a secondary power source connected to the controller and to the clutch;

a secondary power failure sensor connected to the controller; and

wherein the secondary power failure sensor feeds a signal back to the controller when the secondary power fails and the controller places the system in a fourth of the plurality of alarm states having a fourth set of physical characteristics.

Claim 12. (previously presented) The fire door or gate system of claim 7, further comprising a safety sensor comprising one of an electrical, an optical, and an electro-mechanical device connected to the controller, wherein the safety sensor feeds a signal back to the controller when the safety sensor detects an obstruction in a path of the fire door or gate and the controller places the system in a fifth of the plurality of alarm states having a fifth set of physical characteristics.

Claim 13. (previously presented) The fire door or gate system of claim 7, further comprising at least one audio alert connected to the controller, the audio alert being actuated when one of the plurality of the alarm states has been initiated.

Claim 14. (previously presented) The fire door or gate system of claim 7, further comprising at least one visual alert connected to the controller, the visual alert being actuated when one of the plurality of the alarm states has been initiated.

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Claim 15. (previously presented) The fire door or gate system of claim 1, wherein the input drive further comprises a motor, the system further comprising a plurality of alarm states having a respective plurality of different sets of physical characteristics.

Claim 16. (previously presented) The fire door or gate system of claim 15, further comprising a motor failure sensor connected to the motor, wherein the motor failure sensor feeds a signal back to the controller when the motor fails and the controller places the system in a first of the plurality of alarm states having a first set of physical characteristics.

Claim 17. (previously presented) A fire door system, comprising:

a controller;

a fire door;

an input drive including a motor for moving the door;

a clutch connected to the input drive and operatively connected to the controller;

a spring, the spring biasing the fire door;

a plurality of alarm states having a respective plurality of different sets of physical characteristics; and

a spring failure sensor connected to a line feed of the motor, wherein the spring failure sensor feeds a signal back to the controller when a load on the motor exceeds a predetermined maximum and the controller places the system in one of the plurality of alarm states having one of the sets physical characteristics.

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Claim 18. (Original) The fire door system of claim 15, further comprising an interface device for positively controlling the door, the interface device comprising:

- an open button for placing the door in a moving up mode;
- a close button for placing the door in a moving down mode;
- a stop button for placing the door in a stopped mode; and

wherein the stop button is a momentary switch that stops the door while the button is pressed and returns the system to the immediately previous mode when the stop button is released.

Claim 19. (Original) The fire door system of claim 1, further comprising a reset switch that is automatically actuated when the door reaches a fully opened position, wherein the reset switch sends a signal to the controller and changes a state of the system from an alarm mode to a regular operational mode.

Claim 20. (previously presented) The fire door or gate system of claim 1, further comprising a manual alarm switch operatively connected to the controller and by which the system can be manually placed in a first alarm state having a corresponding first set of physical characteristics for testing the system.

Claims 21-59. (previously Canceled)

Claim 60. (previously presented) A fire door system, comprising:

- a controller;
- a fire door;
- an input drive for moving the door;
- a clutch connected to the input drive and operatively connected to the controller; and
- a clutch failure sensor operatively connected to the clutch and the controller;

wherein the controller is configured to establish a clutch failure alarm condition in

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response to the signal.

Claim 61. (previously presented) The fire door system of claim 1, wherein the controller is configured to:

enter an alarm condition when loss of primary power is detected; and
disengage the clutch in pulses and thereby permit the door to fall in controlled increments until the door is completely closed.

Claim 62. (previously presented) A fire door system, comprising:

a controller;
a fire door;
an input drive for moving the door;
a clutch connected to the input drive and operatively connected to the controller;
wherein:

the input drive comprises each of a motor and a hand crank hoist;
the system further comprising a sensor that is actuated when the hand crank hoist is engaged, wherein:
the sensor sends a signal to the controller;
the controller is configured to establish an alarm condition in response to the signal; and

the controller operates the clutch instead of the motor during an alarm condition when the hand crank hoist remains engaged.

Claim 63. (previously presented) The fire door system of claim 60, further comprising an audio and/or visual alert mechanism connected to the controller, the audio and/or visual alert mechanism being activated in response to a signal from the clutch failure sensor to the controller.